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Washington, D.C. 20554

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CC Docket No. 96-45

Federal-State Joint Board  
on Universal Service

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COMMENTS OF

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I, Robert K. Lock, Jr., file these comments on December 16, 1996, regarding the Recommended Decision of the Joint Board in the FCC's **Federal-State Joint Board on Universal Service**, CC Docket No. 96-45. I have attached as my comments a copy of a paper entitled "Advancing the Discourse on Universal Service: An Analysis of Wireless as a Viable Means of Addressing Low-Income Urban Nonsubscribership." This paper analyzes the potential for wireless technologies, in conjunction with a modicum of targeted regulatory reform, to function as an input for addressing universal service concerns for a subset of low-income nonsubscribers. The purpose of the research is to

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explore the possibility of using wireless services and technologies to advance the benefits of telecommunications and competition in the local exchange to all potential consumers, including low-income nonsubscribers.

## **ADVANCING THE DISCOURSE ON WIRELESS**

### **UNIVERSAL SERVICE:**

#### **An Analysis of Wireless as a Viable Means of Addressing Low-Income Urban Nonsubscribership**

##### **I. Introduction**

The signing of the Telecommunications Act of 1996<sup>1</sup> (the Act) into law on February 8, 1996 marked the first significant alteration of the regulatory structure governing the telecommunications industry since the passage of the Communications Act of 1934. Encompassed within its framework are provisions touching, directly or indirectly, upon every aspect of the production, distribution and use of communications goods and services.

Now that the Act has passed, competition is expected to supplant the protections previously afforded consumers by regulatory safeguards. The consumer, in addition to receiving the same level of protections as previously enjoyed under regulation, is promised increased innovation in telecommunications services and products, particularly at the local level. For the regulated carriers, the result of this contract modification will be the

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<sup>1</sup> Pub. L. No. 104-104, 110 Stat 56 (1996) (to be codified at 47 USC).

opportunity to enjoy increased freedom from oversight and whatever profits the competitive market will bear.<sup>2</sup>

The primary force behind the passage of the Act is technological change, which has caused production costs to fall, allowed new products and providers to emerge, and raised significant questions as to the ability of the current regulatory apparatus to deal with these changes in the market. (Shin & Ying:1992) Technological innovation, especially in areas such as wireless services and technologies, coupled with the changing nature of demand for telecommunications are destroying the long-standing natural-monopoly character of the telephone industry.(Hunter:1983)

It is also hoped that by constructing a new paradigm under the Act, competition will drive universal service figures closer to the elusive 100% penetration figure. Under the new regime, wireless services are being counted on to continue to improve the ability of all Americans to maintain contact for both their business and their personal needs. In addition, it has recently been suggested that wireless providers might also have a place in universal service policies.<sup>3</sup>

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<sup>2</sup> It is important to understand that the market that the telephone companies are pursuing with broadband interactive communications networks is not just the \$20 billion cable, or \$12 billion movie rental market. It is worth hundreds of billions of dollars. It is for competitive (unregulated) services such as workforce training, medical services and shopping. It is the ability to see real estate before traveling there. It is videoconferencing and using multi-media services for entertainment and business uses. (Fortune:1993) Analysts expect revenue from local telecommunications services alone to rise from approximately \$45 Billion in 1995, to \$56 Billion by 2001. (Electronic Buyer's News:1996)

<sup>3</sup> The primary focus of discussion in this area has been on the use of wireless to connect or maintain connection to individuals located in rural areas of the country. These people, due to cost factors associated with geography and topography, have traditionally been under-served, and wireless is seen as a natural technology to cost-effectively connect them to the public telephone network. This issue is not the focus of this paper, which seeks further research and reform with respect to low-income urban Americans.

As discussed below, recent research in the area of universal service reveals that current policies have failed to address the circumstances of a significant portion of the citizenry, namely, low-income urban nonsubscribers. Based upon preliminary data, it appears that this group exhibits characteristics that make the application of current support mechanisms difficult, if not impossible. For example, recent studies of low-income nonsubscribers appear to show that policy makers have not developed programs that focus on a particular and little understood form of mobility -- moving relatively frequently. This phenomenon, which I shall call *residential transience*, represents a negative gradation of the concept of mobility as that concept is traditionally understood.

The cause of disconnection for this group is not necessarily associated with charges for connection to the network. Rather, it appears to center on toll usage, a commodity that this group appears to consume at high levels relative to income. Once off the network, residential transience, plus administrative and regulatory hurdles associated with accessing support mechanisms, act to keep them off for prolonged periods of time. Given the proper incentives and safeguards, and a modicum of targeted regulatory reform, regulators have the opportunity to unleash the potential of a competitive market to profitably meet the needs of this neglected group.

First, comprehensive and specifically targeted research should be undertaken to determine the characteristics of this group, with particular emphasis on the *residential transience* which they appear to exhibit. Then, existing support mechanisms would have to be reformed based upon this research. The Lifeline Assistance and Link-Up America programs (hereafter referred to as Lifeline and Link-Up) particularly, would have to be altered to address the fact that the people that it is meant to help exhibit traits that run

counter to their efficient and socially optimal operation. Specifically, these programs, as well as policies concerning such issues as toll blocking, "calling-party-pays" rate plans<sup>4</sup>, pre-paid toll and the interconnection and unbundling of competing networks, should be made to recognize the characteristics of wireless services and technologies as potentially valuable inputs in transitional policy frameworks. In particular, policy makers should combine a reform of existing programs with a regulatory scheme which provides opportunities and incentives to all carriers to serve the unserved. Under this dynamic, wireless local loop providers are in a position to provide a significant contribution toward the goal of universal service, while concurrently advancing the cause of competition in the local exchange. This is particularly true in low-income urban settings where existing wireline infrastructure is decayed or otherwise inadequate for the provision of reliable, high-quality telephone service.

This paper is an attempt to develop a discourse in this area, by bridging some of the discussion concerning universal service and that of wireless telecommunications policies. It is also a call for more and targeted research. The purpose of this paper is to examine the state of the universal service debate in light of the passage of the Act, with a particular emphasis on the role of wireless services in fulfilling universal service goals for low-income urban residents. A preliminary examination of this subject suggests that rational policies on mechanisms such as toll blocking,, calling-party-pays rate plans and

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<sup>4</sup> "Calling-party-pays" refers to the practice of having the party that initiates a call pay it, as opposed to the current practice, where wireless subscribers pay for all calls to or from the wireless unit. Only the U.S. has such a distortive pricing philosophy. (Pearce:1996) The benefit of a rate design where the party that calls pays for the call is that it puts the costs where they belong, on the caller, and should result in a reduction in wireless usage charges overall. This would make it easier for low-income subscribers to afford the charges

pre-paid toll accounts to avoid disconnection of service, coupled with the promotion of wireless as an input to universal service policies, will allow policy makers to tap this vast resource as a means to serve the unserved.

In Part II of this paper, the current state of research on the characteristics of low-income urban nonsubscribers is examined. Part III discusses the concept of universal service. Part IV examines the evolution of wireless services, and their potential role in universal service policy for low-income urban residents. Finally, Part V offers recommendations for future research on the issue of wireless universal service policy.

## **II. Characteristics of Low-Income Urban Nonsubscribers**

Most researchers agree that competition in local markets has enormous potential to foster the goals of universal service. For one thing, competition creates incentives for companies to enter local markets with cost-effective and technologically advanced systems. (FCC:1996) In considering the rules and procedures under which competition is introduced into local markets, particular attention should be given to whether the price and service benefits of competition will reach low-income, mobile and other populations most likely to be nonsubscribers. (Belinfante:1995)

The singular and overlapping characteristics of low-income Americans without telephone service constitute a challenge to policy makers above and beyond the economic issues usually associated with universal service. As a group, the very poor in central cities trail U.S. average penetration by 14 percentage points. (NTIA:1996) The income

threshold seems to be around \$20,000. Households with income above \$20,000 have telephone penetration at the national average or above. About 50 million households earn below \$20,000, constituting about 55% of the total number of households in the U.S. (Schement:1995) Current penetration rates for those with incomes under \$10,000 are only 87.1%, while the rates for those earning less than \$5,000 stands at 75%.(FCC:1996) The stakes for these people are high. Ultimately, their continued existence at the fringe of telephone service contributes to their isolation from the mainstream of the evolving information society. (Schement:1995) For the poorest households with large families, the lack of telephone service means that they are impaired when seeking public assistance for which they qualify, and particularly isolated in terms of emergencies. (DuPont et al.:1996)

A recent FCC analysis of universal service support mechanisms revealed that nonsubscribership is particularly high among the young, the unemployed, minority households with children, and those receiving public assistance. In addition, low-income households and households in nonpermanent living situations comprise the vast majority of nonsubscribers. (DuPont et al.:1996) Despite the high overall rates and the apparent progress among minorities, recent studies indicate that subscribership among African-American and Hispanic households continues to lag that of White households by about 10%. In some demographic categories, and despite the existence of various support mechanisms, nonsubscribership remains as high as 20-30% or more. At present, 80% of Lifeline subscribers depend on the subsidy to make telephone service affordable. (DuPont et al.:1996)

Nearly all policy researchers agree that the persistent 6% of households without telephone service (approximately 6 million households, and 15.84 million individuals) is too many.<sup>5</sup> Not only do more than 6 million American households lack a telephone for basic needs such as 911 emergency services, access to the workplace, commerce and each other, they are increasingly in danger of being cut off from the numerous social and economic benefits promised by access to the Information Superhighway. (NTIA:1996)

#### A. A Sense of Residential transience

Several studies suggest that a person in-transit is less likely to have a telephone than a long-term resident. In fact, after economic reasons such as income, mobility was the most important factor in determining nonsubscribership. (Census:1994) In studies performed in low-income areas, the vast majority of nonsubscribers are renters, and most have lived at their current residence for less than one year. Most of these households are below or near the poverty line. (Belinfante:1995) The U.S. Census Bureau's Current Population Survey revealed that nationally, renters are six times more likely than owners to be without a telephone. In New York state, renters make up 90% of households without telephones. (DuPont et al.:1996)

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<sup>5</sup> The figure of 6 million households is taken from the December 1995 FCC Telephone Subscribership Report (Belinfante, A.). The number of affected individuals was calculated by multiplying the 6 million household figure by 2.64, which was the average number of individuals per household in the U.S. according to the 1990 U.S. Census.

These very preliminary findings highlight the existence of a particular type of mobility exhibited by low-income urban residents. However, the concept of mobility generally, and its implications are poorly understood. Little work has been done to define the various gradations of mobility which appear to exist. Consequently, data simply do not exist to allow for a reasoned scientific analysis of the concept in the context that we are discussing here. What information there is indicates the existence of *residential transience* exhibited by the low-income urban resident -- a phenomenon that has confounded well-intended attempts by policy makers to connect these users to the network. The term *residential transience* implies a transient or temporary living arrangement.<sup>6</sup> Particularly in states that require that residents live at a particular location for a certain time period prior to qualifying for support mechanisms, or that limit the frequency with which residents may avail themselves of support, *residential transience* poses a significant challenge for the optimal operation of universal service programs.

The majority of those without telephones once were subscribers. (DuPont:1996)

One of the primary reasons for the emergence of the condition of *residential transience* may be the disconnection for nonpayment of toll charges which appears to occur disproportionately among low-income minorities. Even more revealing is the fact that among households receiving public assistance, 34.7% lack telephones, whereas, of households on welfare, 27.9% lack telephones. The rate drops even further for households completely dependent on public assistance—43.5% lack telephones.

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<sup>6</sup> Roget's Thesaurus (1911), defines transience in terms of impermanence or temporary.

(Schement:1995; see also DuPont et al.:1996; and, Census:1990)<sup>7</sup> Whereas only 2.2% of homeowners live without telephones, 10.7% of renters go without. Further, among those in public housing, 21.7% are phoneless. Finally, those living in hotel rooms or boarding houses achieve only a 40.2% rate of penetration. (Schement:1995)

The data above, while preliminary, indicate an alarming pattern among a significant portion of the population that universal service policies were intended to reach. It is clear that a great deal more research needs to be done to further expand the information available to policymakers on the characteristics which this group exhibits. However, there are reforms which can be undertaken during this period which are consistent with the Act, and which can move towards addressing the persistent gap in universal service penetration.

In addition to reform of the existing universal service support mechanisms, some have suggested that providing streamlined procedures for assistance and toll blocking might increase the penetration levels of low-income Americans. Others contend that allowing customers to retain access to emergency and government services may ameliorate the effects of local service disconnection. (DuPont et al.:1996) It has become clear that the groups at the margin merit special concern and action because universal service will not advance without new targeted policies. (Schement:1995)

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<sup>7</sup> Some studies have suggested that a substantial number of low-income households remain off the network by choice, to avoid problems like gangs and drugs. (FCC:1996; see also, Mueller & Schement:1995) Further research needs to be done in this area to better understand the specific characteristics of this group of nonsubscribers.

## B. Some Rationalizations

An examination of the characteristics of low-income urban residents without telephone service raises some interesting questions, which researchers have only very recently begun to analyze. Drs. Milton Mueller and Jorge Schement of Rutgers University have done some of the pioneering work in this area. However, their work is very preliminary and raises as many questions as it answers.

One possible explanation for the disproportionately high level of toll usage for low-income subscribers may be the fact that they lack the resources to travel. Consequently, the telephone becomes one of the primary means of maintaining contact with relatives and friends dispersed throughout the country.

The fact that Link-Up support mechanisms are limited, makes it very difficult to maintain connection of these customers. The mobility of this group means that the Link-Up fund cannot be accessed without having to wait for a prolonged period of time. This results in potential subscribers going unconnected. However, the mobility and the high toll usage of this group of nonsubscribers makes them a potentially attractive source of revenue for the right provider. With adequate safeguards, it is possible to reconnect and retain these customers on the network, to the benefit of all. If the proper reforms are implemented, it is conceivable that wireless service providers could provide the type of connectivity which is required to overcome the effects of *residential transience* on connection to the public telephone network and all that it provides.

### **III. The Changing Nature of Universal Service Policy**

#### **A. History**

The terms of the regulatory contract under which all parties in the telecommunications market have functioned up until now, and which the Act promises to significantly modify, allowed for the construction of a state-of-the-art telecommunications network which has reached upwards of 94% of the nation's households with high quality telephone service. In order to accomplish this, AT&T and regulators constructed a set of support mechanisms which allowed the company to keep prices low for rural and low-income residential customers and in high-cost areas. For example, long-distance rates have generally subsidized local rates and urban have subsidized rural rates in order to promote public policies such as universal service. (Weinhaus & Oettinger:1988)

The effects of this contract have been to stimulate investment to serve customers who may otherwise not have been served through the operation of the competitive market. The economic justification for regulation of telecommunications was based upon significant economies of scale in local exchange and long-distance markets, as well as the expense and inconvenience to consumers of having to deal with parallel competing networks. (Phillips:1988)

Over the past ninety or so years universal service has been an organic concept, changing significantly depending upon the environment. Contrary to popular belief, it was originally implemented in 1907 as a business strategy by AT&T's Theodore Vail, to promote connection to AT&T's network. (Mueller:1993) The concept of universal service

has been a central focus of public policy since the early 20th century, and has evolved as an integral part of the regulatory environment for telecommunications in the United States.

From Local Exchange Companies (LEC's) to Interexchange Carriers (IXC's) to Competitive Access Providers (CAP's) to regulators and consumer groups, the concept of universal service has meant different things at different times depending upon a host of different factors. Consequently, in every jurisdiction, from the Federal Communications Commission (FCC) to the various state regulatory commissions, there may be several very different definitions of the concept operating concurrently, resulting in uncertainty and confusion for participants in the regulatory process. Hopefully, this will change with the implementation of the Act.

The importance of connectivity to the communications network has developed to the point where access is considered a privilege to be enjoyed by all, and telephones are treated as 'anonymous objects' making up a basic part of our everyday life.

(Fischer:1992) In its modern incarnation, the ability to make and receive calls on the Public Switched Telephone Network (PSTN) is viewed -- if not as a basic human right -- at least as a necessity for full participation in modern society. (Marvin:1988) We have now arrived at a point where access to all information, goods and services is increasingly geared toward people with access to telephones. (Graham et al.:1996) The telephone is the hub of most people's personal information system, particularly for the low-income, as funding cuts have severely limited the ability to access information from many social agencies except by the telephone. (Murdoch & Golding:1989)

In order to extend the privilege of connection to the communications network to the masses, companies have been encouraged to invest in the development of a modern, expansive telecommunications network. In many cases, this encouragement has taken the form of a state mandate to serve a particular segment of the population or area. In order to enact this mandate, the state had to guarantee the network provider the opportunity to recover the costs associated with the investment.<sup>8</sup>

Up until recently, the need for regulation in telecommunications and other public utility industries has rested on significant production economies and on the localized and restricted nature of the markets for utility services which established a uniquely close connection between utility's plant and the consumer's premises. (Bonbright:1961) The combination of economies of scale over the relevant portion of the demand curve, multiproduct production, and vertical integration provide the primary public interest rationale for the emergence of vertically integrated utilities with de facto legal monopoly franchises to provide retail service to a specific geographic area, subject to price regulation. (Joskow:1989)

In telecommunications, the creation of government regulation came about because the initial proliferation of telecommunications providers resulted in price competition in some places, with resulting service quality problems where either the prices were not cost-based or where opportunistic entrepreneurs entered the local markets intending to simply prompt existing carriers to buy them out. (Barnett & Carroll:1993) Recent research in the area has recognized that telecommunications regulations, such as policies promoting

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<sup>8</sup> Federal power Commission V. Hope Natural Gas Co., 320 U.S. 591, 601 (1944).

universal service, are justified as a means of capturing for consumers as a whole the benefits of “network externalities” that accrue as the size of the network grows. (Taylor:1994)

In general, the credibility and effectiveness of a regulatory framework, such as the regulatory contract, can be examined by its ability to stimulate private investment, which varies according to the actions of the political and social institutions which enter into the bargain. (Levy & Spiller:1994) The foundation for a successful regulatory contract is the development of a governance structure that is adequate to constrain arbitrary administrative action and that induces private investment to take place. The correct way to view the regulator's problem is as one of selecting the best type of contract for the public interest. (Demsetz:1968)

Universal service has become an important point of contention as the local exchange marketplace becomes more competitive and includes new providers using new technologies. The issue of how to handle universal service must be addressed as new services penetrate the local market, in order for the transition to competition in the local market to be complete. Federal and state regulators must decide how universal service should be defined (and how existing programs need to be modified) in the new competitive environment. (Warner:1996) During this process, regulators must recognize that universal service is a dynamic concept which should be viewed within the context of a jurisdictions' stage of economic development, as well as within the context of relevant economic, social and political objectives. (Blackman:1995)

## B. Current Universal Service Support Mechanisms

### 1. Link-Up America

Adopted by the FCC in 1987, Link-Up is a program which was developed as a means to achieve universal service goals. Link-Up helps low-income subscribers connect to the public telephone network by paying half of the first \$60 in connection charges that they are assessed.<sup>9</sup> Where a subscriber chooses to pay in an installment plan, Link-Up pays interest on any balance, up to \$200, for payment plans lasting up to one year. Subscribers must meet a state established means test to qualify for the program, and some states have matching Link-Up programs that place limits on the frequency with which subscribers can access the program. Roughly 840,000 households received \$19 million in Link-Up assistance in 1994. (DuPont et al.:1996)

While Link-Up is an attractive program, it has become clear that there are some significant flaws in its make-up that must be addressed if the problems associated with *residential transience* are to be reduced. For example, time and frequency limits placed on the receipt of the subsidy by some states (i.e., once a year) may reduce, or even eliminate the benefit of the program for mobile individuals of the type characterized above. For these Americans, a once-a-year restriction would act to keep them off of the network for at least a portion of any given year. Policy makers must question whether this is what was intended for this program.

### 2. Lifeline

Lifeline is a support mechanism that was designed to promote universal service by reducing the monthly rate for telephone service. Under the program, low-income subscribers that satisfy a state means test may have their bill reduced by twice the Subscriber Line Charge (SLC) that is assessed to consumers by the telephone company

to recover part of the costs associated with the use of the local telephone plant. A requirement of the program is that the state must match federal input (the SLC is currently about \$3.50). The Lifeline program was originally conceived as a mechanism to shield low-income subscribers already on the network from the effects of implementing the SLC as part of the divestiture of AT&T. Over time it has developed the broader purpose of expanding telephone service to low-income nonsubscribers.

At present, companies in forty-three states reported subscribers receiving Lifeline support. About 4.4 million households received \$123 million in Lifeline Assistance through full or partial waiver of the SLC in 1994. (DuPont et al.:1996) As with Link-Up, Lifeline is administered by the National Exchange Carriers Association (NECA), which pays carriers for SLC's not collected from consumers through revenues collected from the largest inter-exchange carriers.<sup>10</sup>

The Lifeline and Link-Up programs were adopted in the wake of the divestiture of AT&T, in response to concerns that low-income and elderly subscribers would fall off the network as a result of increases in local rates that arose out of the breakup. One of the problems that would need to be addressed if wireless services are to be seriously considered as an input to universal service policies, is that both Lifeline and Link-Up are only available for connection to wireline services. If the low-income individuals and households that are currently unconnected are to be brought onto the network, it is vital that all such mechanisms contemplate the use of wireless services, where appropriate, to achieve universal service goals.

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<sup>9</sup> 47 C.F.R. 36.711

<sup>10</sup> 47 C.F.R. 69.117.

If the preliminary data which have been assembled on the characteristics of *residentially transient* low-income urban individuals are accurate, the restrictions placed upon access to Lifeline and Link-Up supports results in the exact opposite effect which they were intended to create. If this is considered bad, then the question becomes what reforms can be adopted to reduce these figures.

In undertaking an analysis for purposes of reform, a cost-benefit analysis of sorts must be performed. If the costs of reform outweigh the benefits, it will be harder to justify them. One obvious result of reforming Link-Up to allow more frequent access will be that costs of the program will increase as the residentially transient avail themselves of the support provided. Along with the cost of the repeat connections, there will be added administrative costs for each instance of access which must be considered as well. In this age of shrinking subsidies, the feasibility of achieving such reform must be questioned.

It is conceivable, however, that a reform alternative could be crafted which considers the benefits afforded by emerging technologies and competition for local telecommunications. For example, wireless local loop technology might become the connection of choice for a significant portion of the nonsubscribed, if support policies were adopted that contemplated their use. Along with a package of toll blocking, calling party pays and products such as prepaid toll cards, it is possible that wireless could reduce the incidence of *residential transience* that so frustrates universal service goals.

As new applications have transformed the telephone, it makes perfect sense to reconsider the original idea of universal service. Furthermore, new technologies, in and of themselves offer new potentials; so for a concept like universal service, which has

always been technologically dependent, the inventions of the last 30 years invite speculation. (Schement:1995)

### **C. Section 254 of the Telecommunications Act of 1996**

New Section 254 of the Telecommunications Act of 1996 establishes a Federal-State Joint Board to review existing universal service mechanisms and make recommendations regarding steps necessary to preserve and advance this fundamental policy goal. According to the terms of the Act, universal service shall be “an evolving level of telecommunications services,” and the mechanisms and policies shall be based upon the following principles:

1. quality and affordable rates;
2. access to advanced communications services;
3. access in rural and high-cost areas;
4. equitable and non-discriminatory contributions;
5. specific and predictable support mechanisms;
6. access to advanced telecommunications services for schools, health care providers, and libraries;

Under Section 254, all carriers providing interstate telecommunications services are required to contribute to the preservation and advancement of universal service.

## 1. The Universal Service NPRM

One of the first areas that the FCC was required to analyze as part of its responsibilities under the Act was universal service. In the first Notice of Proposed Rule Making (NPRM) which the agency initiated under Section 254 of the Act, the FCC sought comment from all interested parties regarding the manner in which the intricate web of implicit and explicit support mechanisms underlying universal service policies might be reformed.<sup>11</sup> Under the terms of Section 254, all providers of interstate telecommunications services shall contribute to the preservation and advancement of universal service, unless that contribution is considered de minimis.

In the NPRM, the FCC determined that the Act makes explicit that universal service policies should promote affordability of quality telecommunications services.<sup>12</sup> The FCC noted that the Joint Explanatory Statement of the Conference Committee on the Act, added persons with low-income “to the list of consumers to whom access to telecommunications and information services should be provided.” The FCC also noted that subscribership levels for low-income individuals fall substantially below the national average.<sup>13</sup>

The goal of the FCC in opening the NPRM on universal service is to adopt universal service rules that are competitively and technologically neutral so that the rules do not unreasonably advantage one particular technology or class of service provider over

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<sup>11</sup> In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45.

<sup>12</sup> CC Docket No. 96-45, In the Matter of Federal-State Joint Board on Universal Service, Released March 8, 1996, p.10.

<sup>13</sup> Id. Section III.(B)(2)(C)(1) para. 50.

another. In particular, voice grade service, whether provided by wireline or wireless technologies, should be considered indispensable because it enables direct calling into the network, is provided throughout public telecommunications networks, and is subscribed to by a majority of residential customers.<sup>14</sup>

Under the framework of the Act, every provider of telecommunications services, whether interstate or intrastate, shall contribute to the preservation and advancement of universal service. Interstate carriers contribute to the federal fund, while intrastate carriers contribute as determined by State commissions.<sup>15</sup>

Under Section 214(e), universal service support is only available to “common carrier[s]” designated as “eligible telecommunications carrier[s]” by the appropriate state commissions. Section 254(e) also requires that “any carrier that receives support shall use that support only for the provision, maintenance, and upgrading of facilities and services for which the support is intended.” Whether non-wireline and non-dominant carriers can be designated “eligible telecommunications carriers” by State commissions, for purposes of receiving universal service assistance represents a significant and recent issue, given that these carriers are not now subject to FCC separations rules which currently apply only to LEC’s.<sup>16</sup>

One of the areas that has generated controversy in that NPRM is whether, and to what extent, wireless services should be considered as part of any universal service policies that the FCC adopts as part of its responsibilities under the Act. For example,

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<sup>14</sup> Id. Section III.(B)(1) para. 18.; In the NPRM, the FCC recognized that all voice grade services may not have identical transmission characteristics and, in particular, that there may in some cases be differences in the capacity of wireline and wireless networks.

<sup>15</sup> 1996 Act sec. 101(a), Sec.254(d) & (f).

will the contribution that wireless carriers make be limited to dollars, as opposed to the use of wireless services to expand penetration levels?<sup>17</sup> Obviously, wireless carriers, required to contribute to the advancement of the concept of universal service, are now interested in tapping the resources of the universal service fund. All of this marks a radical change in the traditional perception of the universal service concept.

a. Recommendations of the Federal-State Joint Board

On November 7, 1996, the Federal-State Joint Board on Universal Service (Joint Board)<sup>18</sup> released its Recommended Decision in CC Docket No. 96-45. In its 455 Recommended Decision, the Joint Board appears to agree with many of the recommendations set forth in this paper. While there has been insufficient time to evaluate the Joint Board's recommendations in detail, a cursory review of the document reveals support for concepts such as toll blocking or limitation, to help advance universal service penetration. In addition, the Recommended Decision also sets forth criteria under which wireless service providers might gain access to universal service funds. Where wireless carriers are willing (1) to undertake common carrier obligations, and (2) offer a menu of services supported by universal service support mechanisms under Section 254 (

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<sup>16</sup> Id. Section III. (B) (2) (b) para. 30.

<sup>17</sup> As a threshold inquiry in discussing the Benchmark Cost Model submitted by MCI, NYNEX, Sprint and US West in CC Docket No. 80-286, the FCC asked whether the model should be made technology neutral, in order to provide for non-wireline service where such service would be economical.

<sup>18</sup> The Joint-Board was convened pursuant to the Act, which directed the Joint-Board to "thoroughly review the existing system of federal universal service support." S. Rep. No. 230, 104<sup>th</sup> Cong., 2d Sess. 131 (1996) (Joint Explanatory Statement).

c ) of the Act, and (3) that carrier offers the services over its own facilities, or a combination of its own facilities and the resale of another carrier's services, and (4) the wireless carrier advertises the services and charges that it offers, that carrier should have the ability to access universal service support funds.

#### **IV. Wireless As A Viable Means For Increasing Low-Income Urban Penetration Levels**

Since their inception, the policies underlying the development of universal service and the wireless industry have traveled parallel tracks, seemingly never converging due to the immaturity of the technology underlying wireless services. The Act offers the opportunity to finally merge these policies and take advantage of any synergy that is found to exist between them.

Policy makers are concerned with both providing telecommunications services to households that do not have it and with maintaining universal service during the transition to a competitive market. It is becoming apparent that in many circumstances, emerging wireless technologies can contribute to universal service goals by providing unserved users with access to the public network, as well as by serving nonsubscribers at lower costs than with wireline technology. This phenomenon is a recent development, and one which merits consideration by policy makers, particularly during the implementation of the terms of the Act.

Unfortunately, resistance to the idea of using wireless to satisfy social goals has already arisen. In a recent U.S. Senate conference committee meeting for example,

Congress derided the FCC for a rumored plan to provide some type of wireless paging services for the homeless. While no formal plan had been offered as such, the idea had arisen in discussion of communications alternatives for a group even more difficult to serve than those that are treated in this paper. With the appropriate regulatory reforms, perhaps wireless could be used to connect the homeless as well, a group that has fallen out of touch with society.

While this is not the focus of this paper, it raises a question about the psychological aspect of development which Ithiel de Sola Pool discussed in his book *Technologies Without Boundaries*. Pool recognized the phenomenon of development which confronts those seeking to take advantage of the properties of advanced technologies to serve the underserved. Recognizing the resistance to change which characterizes many people, Pool understood that development of the type advocated here must come from many centers, not just the government. Because wisdom is widely dispersed, people on the spot are more likely to make better judgments about the problems they live with than any planner in the capital. (Pool:1990) And Senators in Washington are less informed about the developments in both the social problems and technologies which may be used to cost effectively overcome those problems.

While reforms will still be necessary with the use of wireless to address some of the nagging problems associated with low-income urban nonsubscribership, recent advances suggest that pursuing such a goal may result in the more efficient use of society's resources. Further research needs to be done in this area to clarify this notion.

Throughout the development of universal service policy, wireless services were either non-existent or technologically inadequate and prohibitively expensive, and thus

not considered as viable substitutes for traditional wired local telephone services. Recent advances in this technology have begun to change this perception. It appears clear today that in many rural situations, wireless can provide the least cost connection to the network. However, whether this same claim can be made for densely populated urban areas, where many low-income Americans reside, has not been adequately studied.

The FCC envisioned that the "efficient provision of wireless service may also create alternatives for those not served by traditional wireline providers and should create competition for existing wireline and wireless services."<sup>19</sup> With the development of various wireless technologies, the transformation from what was once a naturally monopolistic method for delivering local telecommunications service is being supplanted over time by a lower-cost method that does not necessarily have large sunk costs and low incremental costs. (Crandall & Sidak: 1995) Many believe that wireless technologies in the local exchange market will change the manner in which every American consumer views local telephone service. It is obvious that advances in technology and the gradual erosion of regulatory barriers to entry have changed the entire complexion of the telecommunications industry. Very recently, we have reached a point where wireless technologies, and the manner in which they are regulated, have the potential to impact significantly upon the local exchange market. PCS and wireless local loops, to name only two of the recent advances in technology and regulation, stand to dramatically alter the nature of local communications. The passage of the Telecommunications Act of 1996, promises to extend the magnitude of these changes. Unfortunately, the manner in

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<sup>19</sup> In re Implementation of Section 309 (j) of the Communications Act - Competitive Bidding, Second Report and Order, 9 FCC Rcd. 2348 (1994)